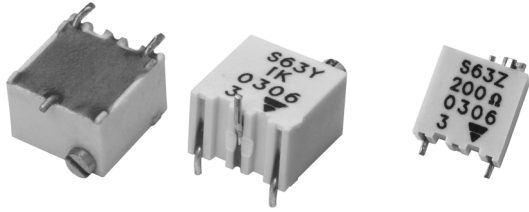


## Multi-Turn Surface Mount Miniature 1/4" Square Cermet Trimmers, Fully Sealed



The TS63 multiturn trimmer has been designed for use in PCB surface mounting applications.

Three variations are available according to the positioning of the control screw and contact positions.

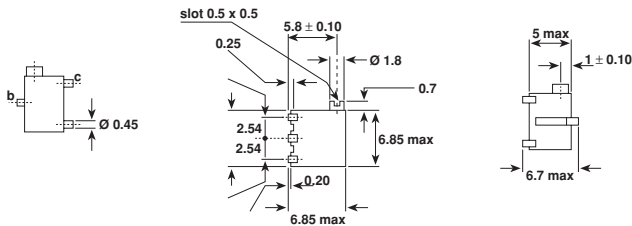
The cermet track gives a high stability performance with an extended ohmic capacity of  $10\Omega$  to  $2M\Omega$ .

### FEATURES

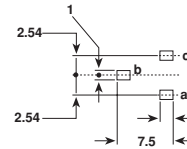
- 0.25 Watt at  $85^\circ\text{C}$
- GAM T1
- Industrial grade
- Multi-turn operation
- A low contact resistance variation
- Tight tolerances
- Low end contact resistance
- Full sealing

### DIMENSIONS in millimeters

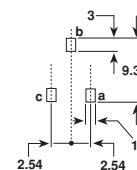
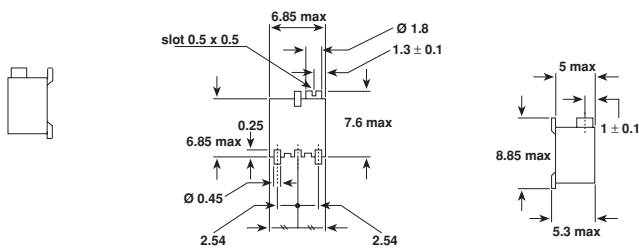
#### TS63X



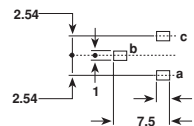
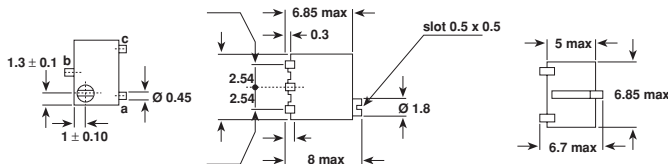
### RECOMMENDED SOLDERING AREAS



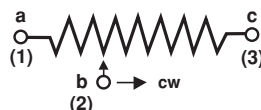
#### TS63Z



#### TS63Y



### CIRCUIT DIAGRAM



**ELECTRICAL SPECIFICATIONS**

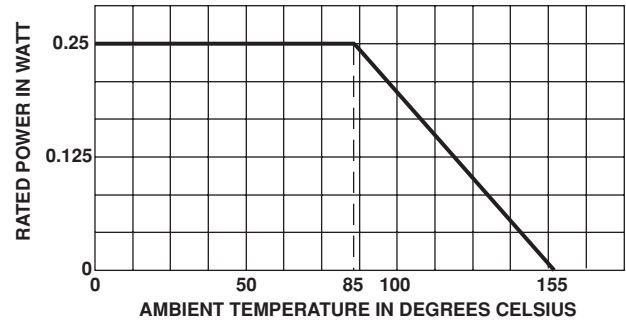
|                                       |             |                                      |
|---------------------------------------|-------------|--------------------------------------|
| Resistive Element                     |             | Cermet                               |
| Electrical Travel                     |             | 13 turns $\pm$ 2                     |
| Resistance Range                      |             | 10 $\Omega$ to 2M $\Omega$           |
| Standard Series                       |             | 1 - 2 - 5                            |
| Tolerance                             | Standard    | $\pm$ 10%                            |
|                                       | On request  | $\pm$ 5%                             |
| Power Rating                          | Linear      | 0.25W at 85°C                        |
|                                       | Logarithmic | not applicable                       |
| Temperature Coefficient               |             | See Standard Resistance Element Data |
| Limiting Element Voltage (Linear Law) |             | 250V                                 |
| Contact Resistance Variation          |             | 2% Rn or 2 $\Omega$                  |
| End Resistance (Typical)              |             | 1 $\Omega$                           |
| Dielectric Strength (RMS)             |             | 1000V                                |
| Insulation Resistance                 |             | 10 <sup>6</sup> M $\Omega$           |

**MECHANICAL SPECIFICATIONS**

|                             |                  |
|-----------------------------|------------------|
| Mechanical Travel           | 15 turns $\pm$ 5 |
| Operating Torque (max. Ncm) | 1.5              |
| End Stop Torque             | clutch action    |
| Unit Weight (max. g)        | 0.5              |


**ENVIRONMENTAL SPECIFICATIONS**

|                   |   |
|-------------------|---|
| Temperature Range | - 55°C to + 155°C                         |
| Climatic Category | 55 / 125 / 56                             |
| Sealing           | sealed container<br>solder immersion IP67 |

**POWER RATING CHART****PERFORMANCE**

| CECC 41100                                  |  |                            |   |                                      | TYPICAL VALUES AND DRIFTS  |   |
|---|--|----------------------------|---|--------------------------------------|----------------------------|---|
| TESTS                                       | CONDITIONS   | $\frac{\Delta RT}{RT}$ (%) | REQUIREMENTS  | $\frac{\Delta R_{1-2}}{R_{1-2}}$ (%) | $\frac{\Delta RT}{RT}$ (%) | $\frac{\Delta R_{1-2}}{R_{1-2}}$ (%)          |
| Climatic Sequence                           | Phase A dry heat 125°C<br>Phase B damp heat<br>Phase C cold - 55°C<br>Phase D damp heat 5 cycles | $\pm$ 2%                   |   | $\pm$ 3%                             | $\pm$ 0.5%                 | $\pm$ 1%                                      |
| Long Term Damp Heat                         | 56 days  | $\pm$ 2%                   | Dielectric strength: 250 V RMS<br>Insulation resistance: > 100 M $\Omega$ | $\pm$ 3%                             | $\pm$ 0.5%                 | $\pm$ 1%                                      |
| Rotational Life<br>(Electrical, Mechanical) | 200 cycles at rated power  | $\pm$ 2 %                  | Contact res. variat.: < 3% Rn   |                                      | $\pm$ 2 %                  | Contact res. variat.: < 1% Rn                 |
| Load Life                                   | 1000 h at rated power<br>90°/30° - ambient temp. 85°C  | $\pm$ 2%                   | Contact res. variat.: < 3% Rn   | $\pm$ 4%                             | $\pm$ 1%                   | $\pm$ 2%                                      |
| Thermal Shock                               | 5 cycles<br>- 55°C to + 125°C  | $\pm$ 1.5%                 | $\frac{\Delta V_{1-2}}{V_{1-3}}$  | $\pm$ 1%                             | $\pm$ 0.5%                 | $\frac{\Delta V_{1-2}}{V_{1-3}}$ < $\pm$ 1%   |
| Shock                                       | 50 g at 11m secs<br>3 successive shocks<br>in 3 directions                                       | $\pm$ 1%                   |   | $\pm$ 2%                             | $\pm$ 0.1%                 | $\pm$ 0.2%                                    |
| Vibration                                   | 10-55Hz<br>0.75mm or 10 g<br>for 6 hours   | $\pm$ 1%                   | $\frac{\Delta V_{1-2}}{V_{1-3}}$  | $\pm$ 2%                             | $\pm$ 0.1 %                | $\frac{\Delta V_{1-2}}{V_{1-3}}$ < $\pm$ 0.2% |

**STANDARD RESISTANCE ELEMENT DATA**

| STANDARD<br>RESISTANCE<br>VALUES | LINEAR LAW  |                            |                                 | T.C.<br>-55°C<br>+125°C |
|----------------------------------|---|----------------------------|---------------------------------|-------------------------|
|                                  | MAX.<br>POWER<br>AT 85°C  | MAX.<br>WORKING<br>VOLTAGE | MAX. CUR.<br>THROUGH<br>ELEMENT |                         |
| Ω                                | W   | V                          | mA                              | ppm/°C                  |
| 10                               | 0.25  | 1.58                       | 158                             | 0<br>+ 200              |
| 20                               |   | 2.23                       | 112                             |                         |
| 50                               |   | 3.53                       | 77                              |                         |
| 100                              |  | 5                          | 50                              | ± 100                   |
| 200                              |   | 7.07                       | 35                              |                         |
| 500                              |   | 11.2                       | 22                              |                         |
| 1k                               |   | 15.8                       | 15.8                            |                         |
| 2k                               |   | 22.3                       | 11.2                            |                         |
| 5k                               |   | 35.3                       | 7.1                             |                         |
| 10k                              |   | 50                         | 5                               |                         |
| 20k                              |   | 70.7                       | 3.5                             |                         |
| 25k                              |   | 79                         | 3.2                             |                         |
| 50k                              |   | 112                        | 2.2                             |                         |
| 100k                             |   | 158                        | 1.6                             |                         |
| 200k                             | 0.25  | 224                        | 1.1                             |                         |
| 250k                             | 0.25  | 250                        | 1.1                             |                         |
| 500k                             | 0.13  | 250                        | 0.50                            |                         |
| 1M                               | 0.06  | 250                        | 0.25                            |                         |
| 2M                               | 0.03  | 250                        | 0.125                           |                         |

**MARKING**

Printed: VISHAY trademark, series, style, ohmic value (in Ω, kΩ, MΩ), tolerance (in %) only if non standard, manufacturing date, marking of terminal 3.

**SOLDERING RECOMMENDATIONS**

Soldering cycle: 2 mn at 215°C or 5 seconds at 260°C or with an IRON 40 W: 3 seconds at 350°C.

Soldering is recommended by reflow and vapor phase.

**PACKAGING**

- X, Y and Z types : on tape and reel (Dia. 330mm) of 500 pieces, code TR500.
- On request in magazine pack by 50 pieces (Tube) code TU.

**ORDERING INFORMATION**TS63  
SERIESY  
STYLE500KΩ  
OHMIC VALUE± 10%  
TOLERANCETR500  
PACKAGING

TR500: Tape and reel  
On request: TU50: Tube

**SAP PART NUMBERING GUIDELINES**

|       |   |   |   |       |                |   |   |     |                   |   |                            |  |  |  |
|-------|---|---|---|-------|----------------|---|---|-----|-------------------|---|----------------------------|--|--|--|
| T     | S | 6 | 3 | Y     | 5              | 0 | 4 | K   | R                 | 1 | 0                          |  |  |  |
| MODEL |   |   |   | STYLE | OHMIC<br>VALUE |   |   | TOL | PACKAGING<br>CODE |   | SPECIAL<br>(IF APPLICABLE) |  |  |  |

See the end of this data book for conversion tables